125*b* concurrently. In a second preferred embodiment as shown in FIGS. **8-9**, the displacement device **130** preferably selectively expands at least one of a first cavity **125***a* and a second cavity **125***b*. The displacement device **130** may function to both expand one of the first and second cavities **125***a* and **125***b* at one time and expand both the first and second cavities **125***a* and **125***b* at another time. In a third preferred embodiment, as shown in FIGS. **14-15**, the displacement device **130** preferably selectively expands at least one of a first group of cavities **125** and a second group of cavities **125** at one time. Similar to the second preferred embodiment, the displacement device **130** of the third preferred embodiment may function to both expand one of the first and second groups of cavities **125** at one time and expand both the first and second groups of cavities **125** at one time. The third preferred embodiment may alternatively be described as a combination of the first and second preferred embodiments because each of the cavities **125** within a group of cavities selected for expansion are expanded at one time. In a fourth preferred embodiment, as shown in FIGS. **19***a***-19***d*, the displacement device **130** preferably expands a first cavity **125***a* and one of a second cavity **125***b* and third cavity **125***c* at one time. The arrangement of the second and third cavities is similar to the second preferred embodiment because the second and third cavities are selectively expanded by the displacement device, and the arrangement of the first cavity is similar to the first preferred embodiment because the first cavity is concurrently expanded with one of the second or third cavities, thus, the fourth preferred embodiment may also be described as a combination of the first and second preferred embodiments.

1. First Preferred Embodiment

Concurrent Expansion

[0031] In the first preferred embodiment, as shown in FIGS. **6***a* and **6***b*, a first cavity **125***a* and a second cavity **125***b* are preferably expanded concurrently. A channel **138** of the fluid network **200** preferably couples the first cavity **125***a* and the second cavity **125***b* with each other and to the displacement device **130**. The channel **138** of the first preferred embodiment is preferably straight, but may alternatively be of a circular shape, zigzag shape, spiral shape, or any other suitable shape to route between the displacement device **130** and the cavity **125**. The fluid displaced by the displacement device preferably travels through the channel **138** to each of the first and second cavities **125***a* and **125***b*. The displacement device **130** may be oriented relative to the first and second cavities **125***a* and **125***b* such that the fluid travels to the first cavity **125***a* and then to the second cavity **125***b*. In this orientation, the pressure within the fluid preferably builds up approximately uniformly between the first and second cavities **125***a* and **125***b* until a pressure point where both the first and second cavities **125***a* and **125***b* start expansion at approximately the same time and at the same rate. Because the fluid travels farther to reach the second cavity **125***b*, the increased pressure necessary to travel to the second cavity **125***b* and expand the second cavity **125***b* may cause the second cavity **125***b* to start expansion at a different time or rate than the first cavity **125***a*. To compensate for this potential difference in pressure, the geometry of the channel **138** and/or the second cavity **125***b* may be adjusted, as shown in FIGS. **7***a* and **7***b*. As shown in FIG. **7***a*, the portion of the layer **110** that is deformed when the second cavity **125***b* is expanded is thinner relative to the portion of the layer no that is deformed when the first cavity **125***a* is expanded. This may decrease the pressure necessary to expand the second cavity **125***b* and may allow the second cavity **125***b* to expand at the same time and rate as the first cavity **125***a*. Alternatively, as shown in FIG. **7***b*, the size of the channel **138** leading to the second cavity **125** may be increased in size (in diameter and/or cross sectional area) to decrease the pressure necessary for fluid to travel through the channel **138**. Alternatively, a second displacement device **130** may be arranged on the opposite side of the cavities **125***a* and **125***b* relative to the first displacement device, decreasing the maximum distance between a cavity **125** to any one displacement device **130**. The second displacement device **130** may function to displace fluid into the cavities **125**, but may also function to provide a backwards pressure to assist the first displacement device **130** in displacing fluid through the fluid network. In other words, the first displacement device **130** may push fluid through the channel **138** in a direction and the second displacement device **130** may pull fluid through the channel **138** in the same direction. However, the first and second displacement devices **130** may cooperate to expand the plurality of cavities **125** in any other suitable method. However, any other geometry or method of allowing both the first and second cavities **125***a* and **125***b* to start expansion substantially at the same time and at the same rate may be used. The first and second cavities **125***a* and **125***b* may also be allowed to start expansion at different times.

[0032] Alternatively, the first and second cavities **125***a* and **125***b* may each be connected directly to the displacement device **130** and not each other. For example, a first channel **138** may couple only the first cavity **125***a* to the displacement device **130** and a second channel **138** may couple only the second cavity **125***b* to the displacement device **130**. The first channel **138** and the second channel **138** are preferably of similar geometry and the first and second cavities **125***a* and **125***b* are preferably of similar distance away from the displacement device **130**. In this orientation, the differences in pressure between expansion of the first cavity **125***a* and the second cavity **125***b* may be decreased.

[0033] The geometry of the channel **138** and the first and second cavities **125***a* and **125***b* may alternatively be used to prevent the first and second cavities **125***a* and **125***b* from having substantially identical expansion properties. For example, the pressure necessary to expand the second cavity **125***b* may be increased to cause the second cavity **125***b* to expand at a time and a rate different from the first cavity **125***a*. This method may also be used to decrease the apparent response time of the user interface system **100**. The time necessary for the displacement device **130** to provide the necessary pressure to expand both first and second cavities **125***a* and **125***b* together may be less than the time necessary for the displacement device **130** to provide the necessary pressure to expand just the first cavity **125***a*, and thus, if the first cavity **125***a* is expanded and then the second cavity **125***b* is expanded, the response time of the user interface system may seem to decrease to the user, potentially providing a better user experience.

[0034] The user interface of the first preferred embodiment preferably includes processor that controls the displacement device **130**. The processor preferably actuates the displacement device **130** to displace a volume of fluid that expands the first and second cavities **125***a* and **125***b* to a desired amount. The displacement device **130** may displace fluid at a constant rate, allowing the processor to control the volume of fluid that